

# Sebago Lake Quadrangle, Maine

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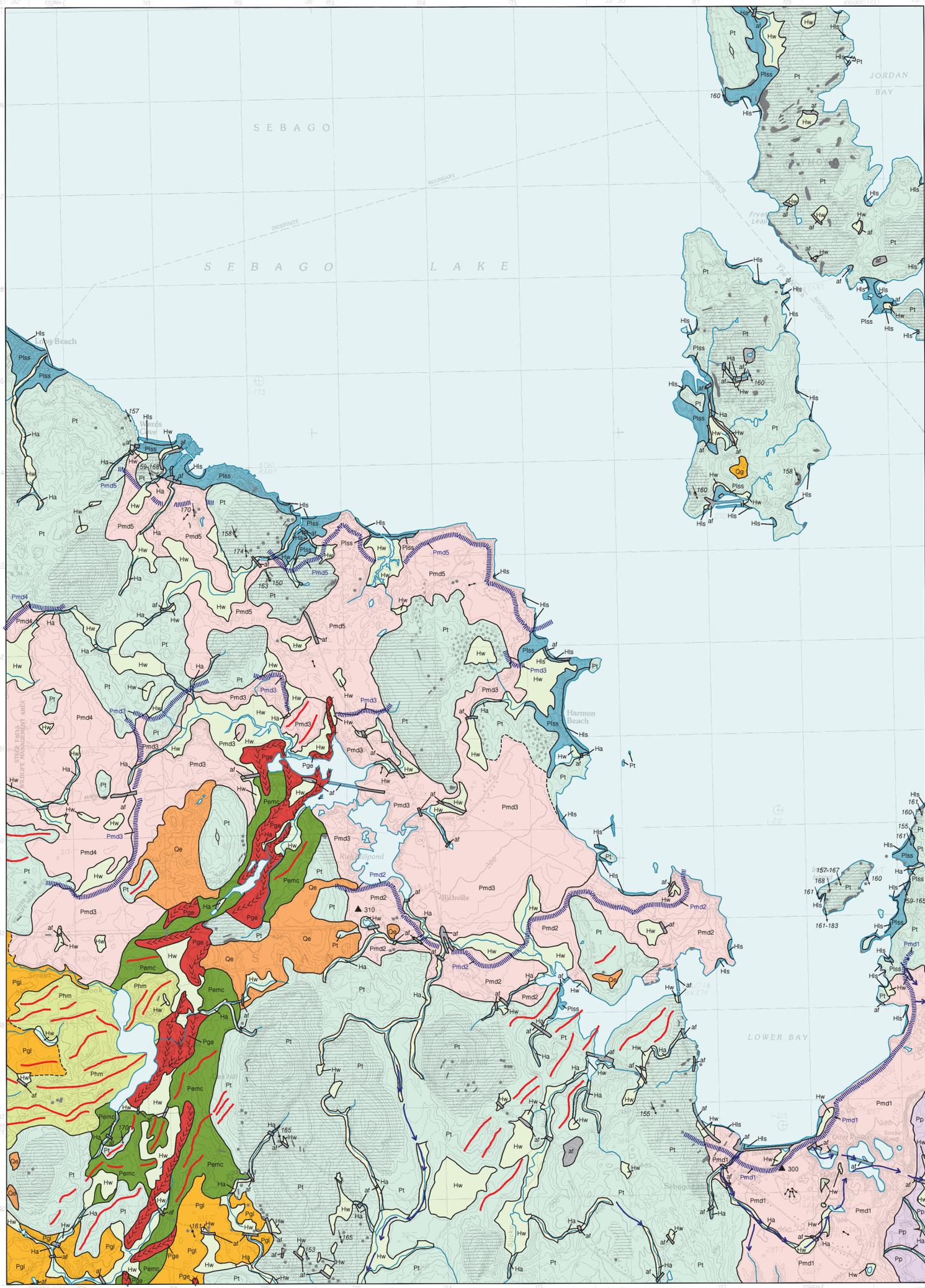
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For additional information,  
see Open-File Report 97-68.

## Surficial Geology



### SOURCES OF INFORMATION

Surficial geologic mapping by Carol T. Hildreth completed during the 1996 field seasons; funding for this work provided by the U. S. Geological Survey STATEMAP program.



Quadrangle Location

SCALE 1 : 24,000



CONTOUR INTERVAL 10 FEET



TRUE NORTH

Topographic base from U.S. Geological Survey Sebago Lake quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not implicate responsibility for any present or potential effects on the natural resources.

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| <p><b>af</b> Artificial fill - Man-made. Material varies from natural sand and gravel to quarry waste to sanitary landfill; includes highway and railroad embankments and dredge spoil areas. This material is mapped only where it can be identified using the contour lines. Minor artificial fill is present in virtually all developed areas of the quadrangle. Thickness of fill varies.</p> <p><b>Ha</b> Stream alluvium (Holocene) - Sand, silt, gravel, and muck in flood plains along present rivers and streams. As much as 3 meters (10 feet) thick. Extent of alluvium indicates most areas flooded in the past that may be subject to future flooding. In places, is indistinguishable from, grades into, or is interbedded with freshwater wetlands deposits (Hw).</p> <p><b>Hw</b> Freshwater wetlands deposit (Holocene) - Muck, peat, silt, and sand. Generally 0.5 to 3 meters (1 to 10 feet) thick. In places, is indistinguishable from, grades into, or is interbedded with stream alluvium (Ha).</p> <p><b>Hls</b> Modern beach deposit (Holocene) - Sand and/or gravel with silt in places. Developed along the present and prehistoric shorelines of Lake Sebago; 0.5 to 2 meters (1 to 6 feet) thick. May include sand dune deposits in places.</p> <p><b>Qe</b> Eolian deposit (Pleistocene) - Sand, fine- to medium-grained, well-sorted. Found as small dunes on a variety of older glacial deposits. Deposited after the ice sheet regressed from the area and left many fine-grained sediments exposed to wind erosion and transport before vegetation established itself and anchored the deposits. Partly contemporaneous with Pls5.</p> <p><b>Qg</b> Undifferentiated sand and gravel - Undifferentiated sand and gravel on Frye Island above 300 ft asl; may be associated with Pls5 deposits.</p> <p><b>Pls5</b> Glacial Lake Sebago shoreline, nearshore, and bottom deposits (Pleistocene) - Massive to stratified and cross-stratified sand (generally fine- to medium-grained) and massive to laminated silt and silty clay. Consists partly of undifferentiated beach and nearshore deposits formed in relatively shallow water by the reworking of older glacial deposits by wave action; and partly of lake-bottom sand, silt, and clay deposits. Locally may contain boulders and gravel. Found as a blanket deposit over bedrock and older glacial sediments. Deposited in glacial Lake Sebago during glacial and late-glacial time. Variable thickness, 0.5-18 meters (1-60 feet). Map unit also includes silt-clay varves, some of which were found in a wave-cut beach cliff on the west shore of Frye Island (site 401).</p> | <p><b>Pp</b> Presumpscot Formation (Pleistocene) - Greenish-gray to bluish-gray marine silt and clay usually occurring as random laminae but often massive. Also contains some sand, especially near the toe of the delta in the southeast corner of the quadrangle. Occurs as variably thick veneer below the marine limit, overlying older units.</p> <p><b>Pmd5</b> - Heads of outwash at about 330-350' elevation from Wards Cove eastward toward Harmon Beach.</p> <p><b>Pmd4</b> - Heads of outwash at about 330-340' elevation in the Steep Falls Wildlife Management Area.</p> <p><b>Pmd3</b> - Heads of outwash at about 330-340' elevation from the swamp area north of Rich Millpond eastward toward Harmon Beach and westward to the west edge of the map near Strout Brook.</p> <p><b>Pmd2</b> - Heads of outwash at about 310-320' elevation from the north end of the west shore of the Lower Bay of Sebago Lake westward through Rich Millpond south shore. A probable delta topset-foreset contact elevation of 310' (Thompson and Smith, 1977) was measured in this unit in a pit along Boundary Road.</p> <p><b>Pmd1</b> - Head of outwash at south shore of Lower Bay of Sebago Lake at about 300-310' elevation. This is the Sebago Lake Marine Delta that plugs preglacial southward drainage of the Sebago basin. A topset-foreset contact elevation of 300' (Thompson and Smith, 1977) was measured in this unit in a pit east of Sebago Lake village.</p> <p><b>Pm5c</b> Ice-contact stratified drift (Pleistocene) - Highly deformed, interbedded, well-sorted, internally massive and bedded, very fine to coarse sands and gravels. Commonly shows evidence of deformation, including reverse and thrust faults and folding resulting from ice contact, or evidence of collapse in the form of normal faults. Deposited mostly adjacent to ice at the head of outwash of a marine delta near Watchic Pond, just south of the quadrangle border in the Standish quadrangle (unit Pmd5 of Gosse, 1999).</p> | <p><b>Pge</b> Esker (Pleistocene) - Sinuous, generally discontinuous ridge of massive and stratified, commonly interbedded glaciofluvial sand and gravel deposited in subglacial and englacial conduits during glacial retreat. Cobble to boulder-sized clasts are commonly highly rounded and spherical. Associated with Pmd3, Pm5c, Pm5b, and Pm5a deposits.</p> <p><b>Pm5c</b> End moraine complex (Pleistocene) - Cluster of closely (and often evenly) spaced ridges of till and/or poorly to well-sorted stratified sediment deposited at the ice margin. This complex extends from the southwest corner of the quadrangle northeastward through the area around Little Watchic Pond, Duck Pond, and Rich Millpond. May contain eskers and subsequent fan deposits. Associated with Pm5c, Pm5b, and Pm5a deposits, but exact relationship requires additional investigation beyond the scope of this report.</p> <p><b>Pm5b</b> Hummocky moraine (Pleistocene) - Massive to stratified, poorly sorted diamict (till) with variable percentage of gravel and sand. Characterized by knobby topography, many boulders, and a loose sandy matrix. Associated with Pm5c, Pm5a, and Pm5d.</p> <p><b>Pt</b> Till (Pleistocene) - Light- to dark-gray, nonsorted to poorly sorted mixture of clay, silt, sand, pebbles, cobbles, and boulders; a predominantly sandy diamiction (more or less sandy or stony, from place to place) containing some gravel. Thickness varies and generally is less than 6 meters (20 feet), but is commonly more than 24 meters (80 feet) thick under the crest of most drumlins.</p> <p><b>Pb</b> Bedrock exposures - Not all individual outcrops are shown on the map. Gray dots indicate individual outcrops; ruled pattern indicates areas of abundant exposures and areas where surficial deposits are generally less than 3 meters (10 feet) thick. Mapped in part from aerial photography, soil surveys (Hedstrom, 1974), and previous geologic maps (Thompson and Smith, 1977).</p> | <p>--- Contact - Boundary (between map units). Dashed where very approximate.</p> <p>--- Direction of glacial meltwater or meteoric water flow over outwash or till deposit.</p> <p>--- 135 --- 175 --- Glacial striation - Point of observation is at dot at center of line.</p> <p>--- Two directions of glacial striations and/or grooves on same outcrop.</p> <p>--- Drumlin form - Indicates general direction of glacial ice movement.</p> <p>▲ 350 Delta - Formed near inland limit of late-glacial marine submergence. Number indicates approximate altitude (in feet) of former water surface. Arrow points in general direction of dip of former beds.</p> <p>----- Crest of esker or ice-channel filling - Shows trend of sand and gravel ridge deposited in meltwater tunnel within or beneath glacier. Chevrons point in inferred direction of meltwater flow.</p> <p>Area of many large boulders.</p> <p>--- Moraine ridge - Ridge of till and/or water-laid sediments interpreted to have formed in marginal zone of glacier.</p> <p>--- Inferred approximate ice-frontal position at time of deposition of designated meltwater deposits.</p> <p>--- Meltwater channel - Channel eroded by glacial meltwater stream or meteoric water flow. Arrow shows inferred direction of former stream flow.</p> | <p><b>REFERENCES</b></p> <p>Gosse, J. C., 1999. Surficial geology of the Standish quadrangle, Maine: Maine Geological Survey, Open-File Map 99-101.</p> <p>Hedstrom, G., 1974. Soil survey of Cumberland County, Maine: U.S. Department of Agriculture, Soil Conservation Service, Soil Survey, 94 p., aerial photographs scale 1:20,000.</p> <p>Thompson, W. B., and Smith, G. W., 1977. Reconnaissance surficial geology of the Sebago Lake quadrangle: Maine Geological Survey, Open-File Map 77-45, scale 1:62,500.</p> |
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**NOTE:** A thin discontinuous layer of windblown sand and silt, generally mixed with underlying glacial deposits by frost action and bioturbation, is present at the ground surface over much of the map area but is not shown.